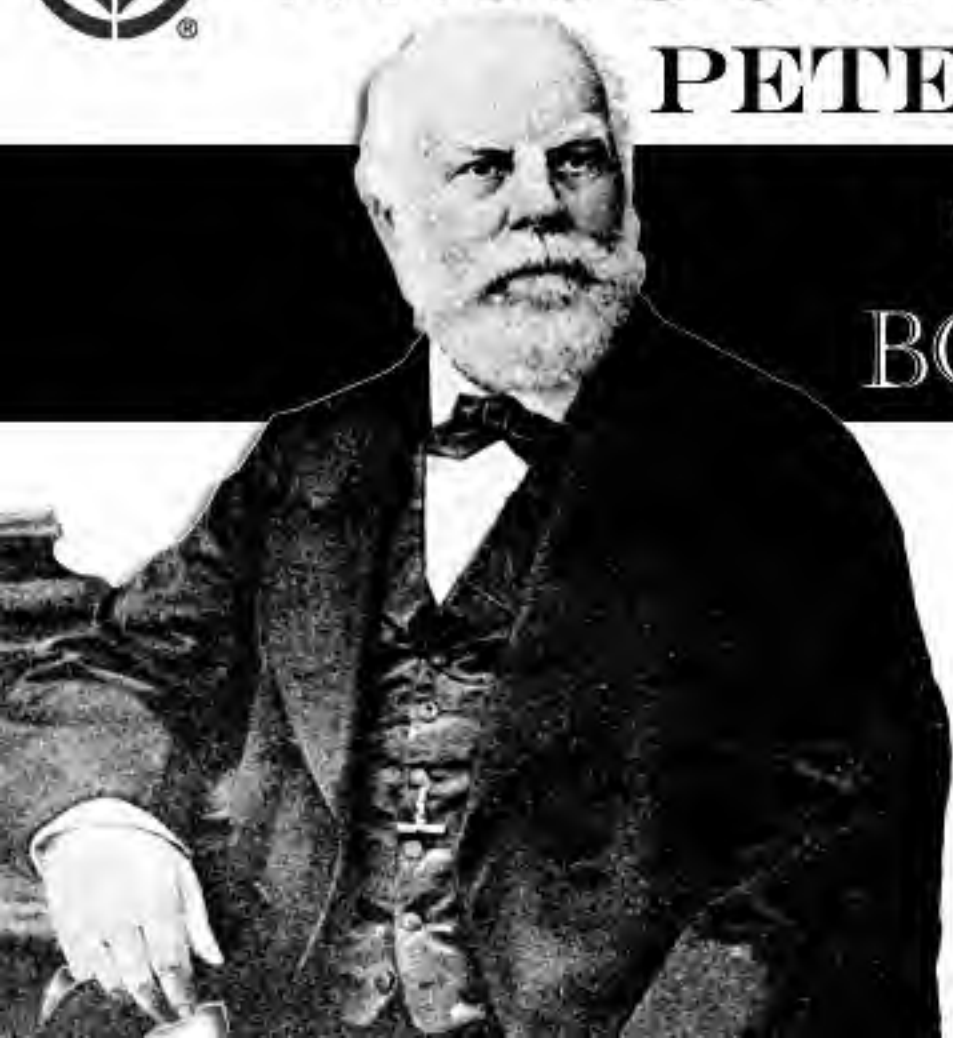




MISSOURI BOTANICAL GARDEN
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GEORGE ENGELMANN
BOTANICAL NOTEBOOKS

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81 *J. bulbosus* Lin
compressus Jacq. Vind. 60.

	Jan.	Feb.	Mar.	Ap'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861...	32.2	40.4	44.8	58.1	64.1	76.9	77.5	78.6	69.1	57.9	46.0	39.7	57.1°F.
1862...	28.9	30.2	43.2	55.0	69.7	75.1	81.2	80.7	72.1	57.3	42.6	41.3	56.4°F.

RELATIVE HUMIDITY.

	Jan.	Feb.	Mar.	Ap'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861...	72.2	63.3	64.5	61.5	66.3	70.8	66.3	69.6	77.3	76.6	69.0	74.3	69.5
1862...	85.3	73.9	70.8	67.0	57.3	67.0	66.8	64.3	74.2	67.2	69.5	74.6	69.8

III. Yearly mean of Positive Electricity of Temperature, and of Relative Humidity of the Atmosphere, at the hours of 6, 9, 12, 3, 6 and 9, from morning till night, based upon daily observations at these hours through the years 1861 and 1862, at St. Louis, Mo.

ELECTRICITY.

	At 6 A.M.	At 9 A.M.	At 12 M.	At 3 P.M.	At 6 P.M.	At 9 P.M.
1861	8.6	10.0	9.2	7.9	8.7	6.9
1862	8.9	10.0	9.1	7.3	8.1	6.8

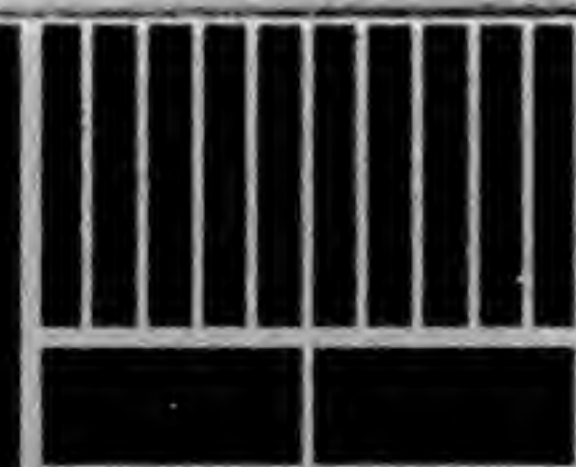
TEMPERATURE.

1861	48.9°F.	54.9	61.6	63.6	59.3	54.3
1862	48.9	55.0	60.9	62.3	58.0	53.6

RELATIVE HUMIDITY.

1861	86.4	71.3	60.3	57.2	65.1	77.3
1862	85.3	70.6	60.0	57.5	67.6	78.0

270-1



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9220

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	Precipitation.		Precipitation.		or U.		Electricity.	
	1861.	1862.	1861.	1862.	1861.	1862.	1861.	1862.
Jan.....	179	179	3	5		2	40°	40°
Feb.....	162	166	6	2			34	33
March...	168	179	15	8			30	48
April....	157	157	12	22	1	1	33	52
May.....	171	180	17	5	1	3	25	32
June	162	143	5	2	8	20	16	21
July.....	183	153	3	8	1	24	14	11
August..	176	143	5	4	6	40	15	19
Sept.....	169	117	1	1	10	61	18	23
Oct.....	162	143	4	3	20	41	33	35
Nov.....	172	157	2	7	6	16	42	42
Dec.....	175	166	5	0	6	17	37	35
	2046	1883	78	67	59	225	42°	52°



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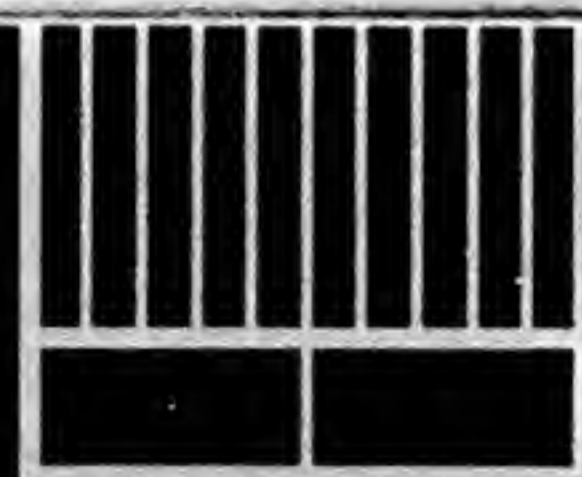
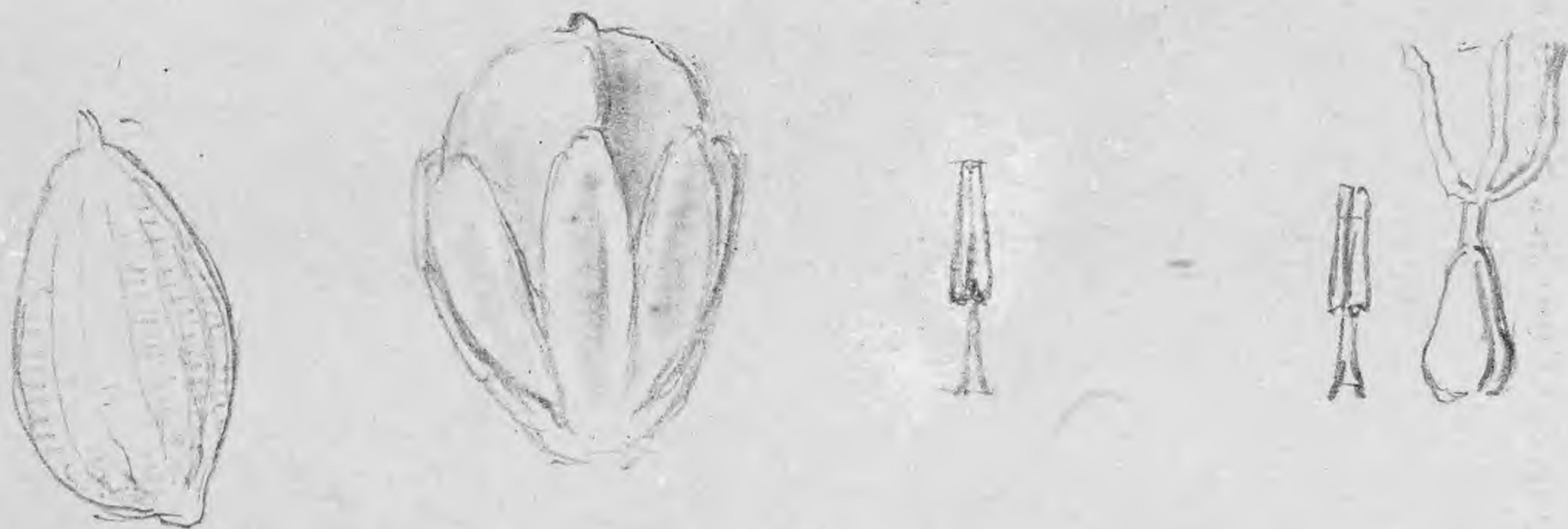


MISSOURI
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Innos bulbosus

Aug 15 1865

France



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GARDEN

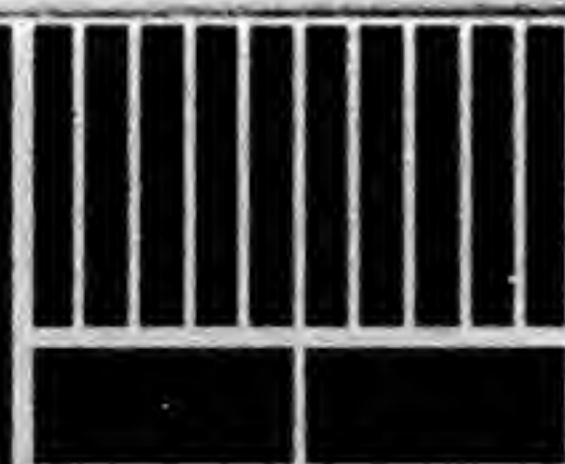
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APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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GEORGE ENGELMANN PAPERS

9221



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J. bulbosus

Aug. 65



Frankfurt ^{Aug} 1824



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JOSE ENGELMANN PAPERS

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Art's Journal



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J. Chamissoi Rth

Ca. III, 748

TEMPERATURE.

	Jan.	Feb.	Mar.	Apr'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861...	32.2	40.4	44.8	58.1	64.1	76.9	77.5	78.6	69.1	57.9	46.0	39.7	57.1°F.
1862...	28.9	30.2	43.2	55.0	69.7	75.1	81.2	80.7	72.1	57.3	42.6	41.3	56.4°F.

RELATIVE HUMIDITY.

	Jan.	Feb.	Mar.	Apr'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861...	72.2	63.3	64.5	61.5	66.3	70.8	66.3	69.6	77.3	76.6	69.0	74.3	69.5
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	At 6 A.M.	At 9 A.M.	At 12 M.	At 3 P.M.	At 6 P.M.	At 9 P.M.
1861	8.6	10.0	9.2	7.9	8.7	6.9
1862	8.9	10.0	9.1	7.3	8.1	6.8

TEMPERATURE.

	At 6 A.M.	At 9 A.M.	At 12 M.	At 3 P.M.	At 6 P.M.	At 9 P.M.
1861	48.9° F.	54.9	61.6	63.6	59.3	54.3
1862	48.9	55.0	60.9	62.3	58.0	53.6

RELATIVE HUMIDITY.

	At 6 A.M.	At 9 A.M.	At 12 M.	At 3 P.M.	At 6 P.M.	At 9 P.M.
1861	86.4	71.3	60.3	57.2	65.1	77.3
1862	5.3	70.6	60.0	57.5	67.6	78.0

273



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V. Positive or Negative Electricity in the Observations of '61 & '62.

	Positive Electricity.		Negative Electricity.		No Electricity, or 0.		Highest Positive Electricity.	
	1861.	1862.	1861.	1862.	1861.	1862.	1861.	1862.
Jan.....	179	179	3	5		2	40°	40°
Feb.....	162	166	6	2			34	33
March...	168	179	15	8			30	48
April....	157	157	12	22	1	1	33	52
May.....	171	180	17	5	1	3	25	32
June	162	143	5	2	8	20	16	21
July.....	183	153	3	8	1	24	14	11
August..	176	143	5	4	6	40	15	19
Sept.....	169	117	1	1	10	61	18	23
Oct.....	162	143	4	3	20	41	33	35
Nov.....	172	157	2	7	6	16	42	42
Dec.....	175	166	5	0	6	17	37	35
	2046	1883	78	67	59	225	42°	52°



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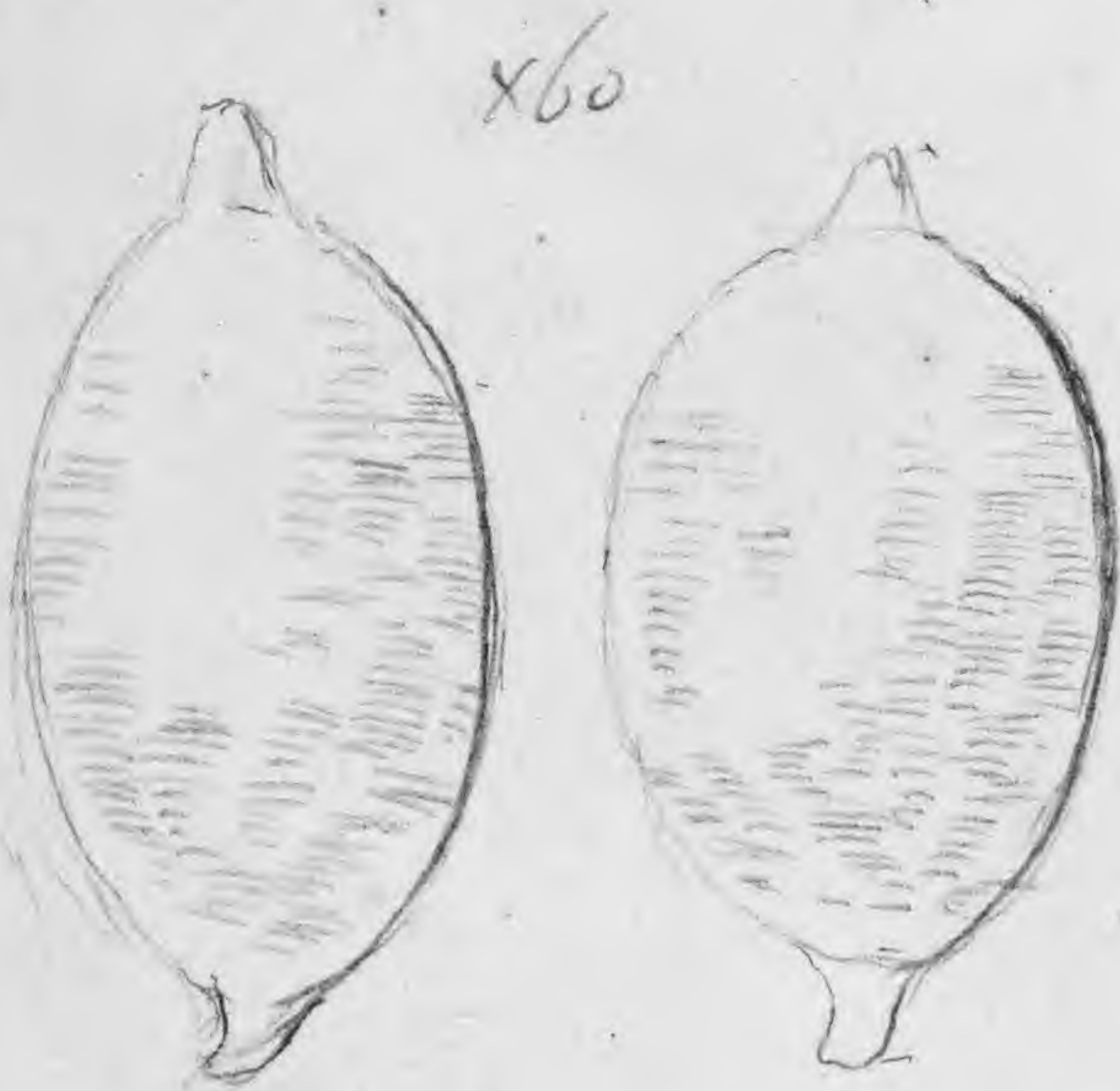
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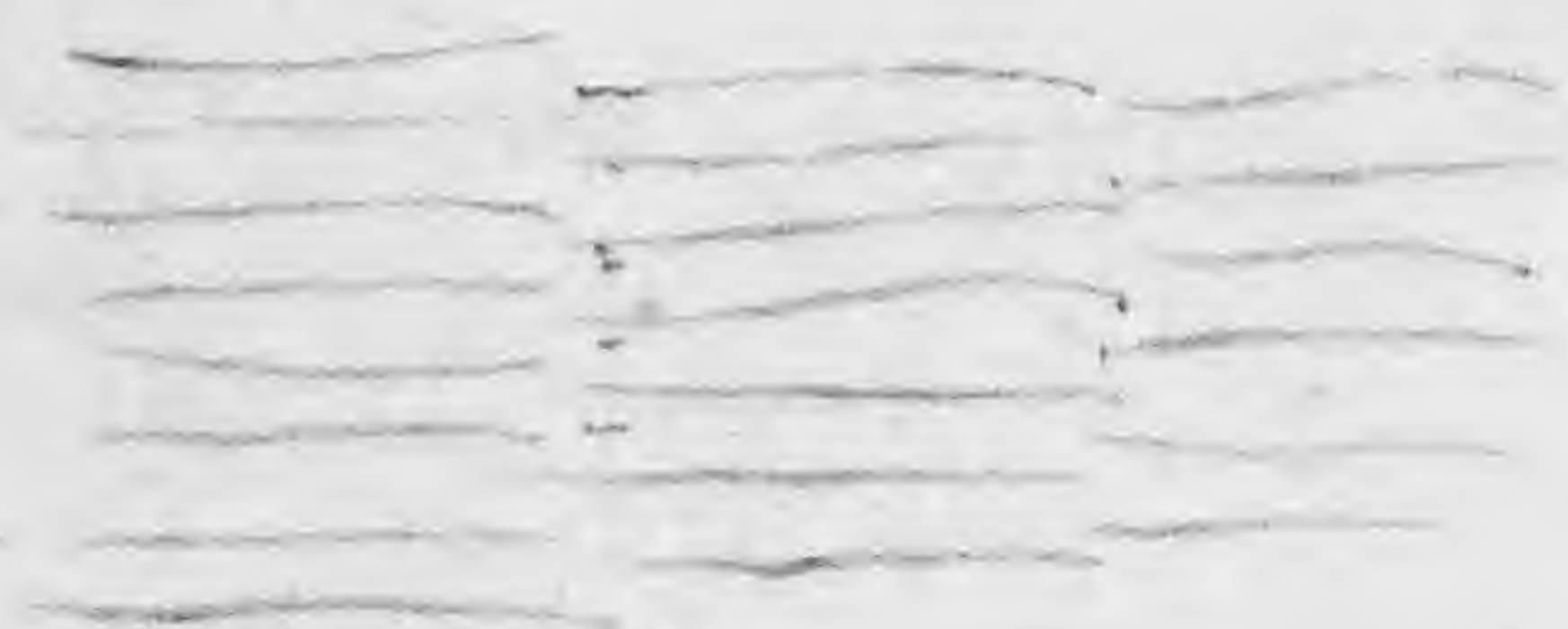
"*Juncus Chamissonis* Kth."

Febr 6 1867

E. Hb. Mus Paris 1866



no distinct ribs visible
lineolation very delicate



x150



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cm

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Alex. Leitch,
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9224

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1861...32.2 40.4 44.8 58.1 64.1 76.9 77.5 78.6 69.1 57.9 46.0 39.7 57.1°F.
 1862...28.9 30.2 43.2 55.0 69.7 75.1 81.2 80.7 72.1 57.3 42.6 41.3 56.4°F.

RELATIVE HUMIDITY.

	Jan.	Feb.	Mar.	Ap'l.	May.	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.	Mean of Year.
1861...	72.2	68.3	64.5	61.5	66.3	70.8	66.3	69.6	77.3	76.6	69.0	74.3	69.5
1862...	85.3	73.9	70.8	67.0	57.3	67.0	66.8	64.3	74.2	67.2	69.5	74.6	69.8

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TEMPERATURE.

1861	48.9°F.	54.9	61.6	63.6	59.3	54.3
1862	48.9	55.0	60.9	62.3	58.0	53.6

RELATIVE HUMIDITY.

1861	86.4	71.3	60.3	57.2	65.1	77.3
1862	85.3	70.6	60.0	57.5	67.6	78.0

274-283



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Observations of '61 & '62.

	Positive Electricity.		Negative Electricity.		No Electricity, or 0.		Highest Positive Electricity.	
	1861.	1862.	1861.	1862.	1861.	1862.	1861.	1862.
Jan.....	179	179	3	5		2	40°	40°
Feb.....	162	166	6	2			34	33
March...	168	179	15	8			30	48
April....	157	157	12	22	1	1	33	52
May.....	171	180	17	5	1	3	25	32
June	162	143	5	2	8	20	16	21
July.....	183	153	3	8	1	24	14	11
August..	176	143	5	4	6	40	15	19
Sept.....	169	117	1	1	10	61	18	23
Oct.....	162	143	4	3	20	41	33	35
Nov.....	172	157	2	7	6	16	42	42
Dec.....	175	166	5	0	6	17	37	35
	2046	1883	78	67	59	225	42°	52°



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Trigonotis buxifolia

Aug 15 1865

x60



x10



filament
twice as long
as anther



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cm

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GARDEN

9226

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APOTHECARY & PHARMACEUTIST,

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GARDEN

Lucas burbanus

Aug 15 1865

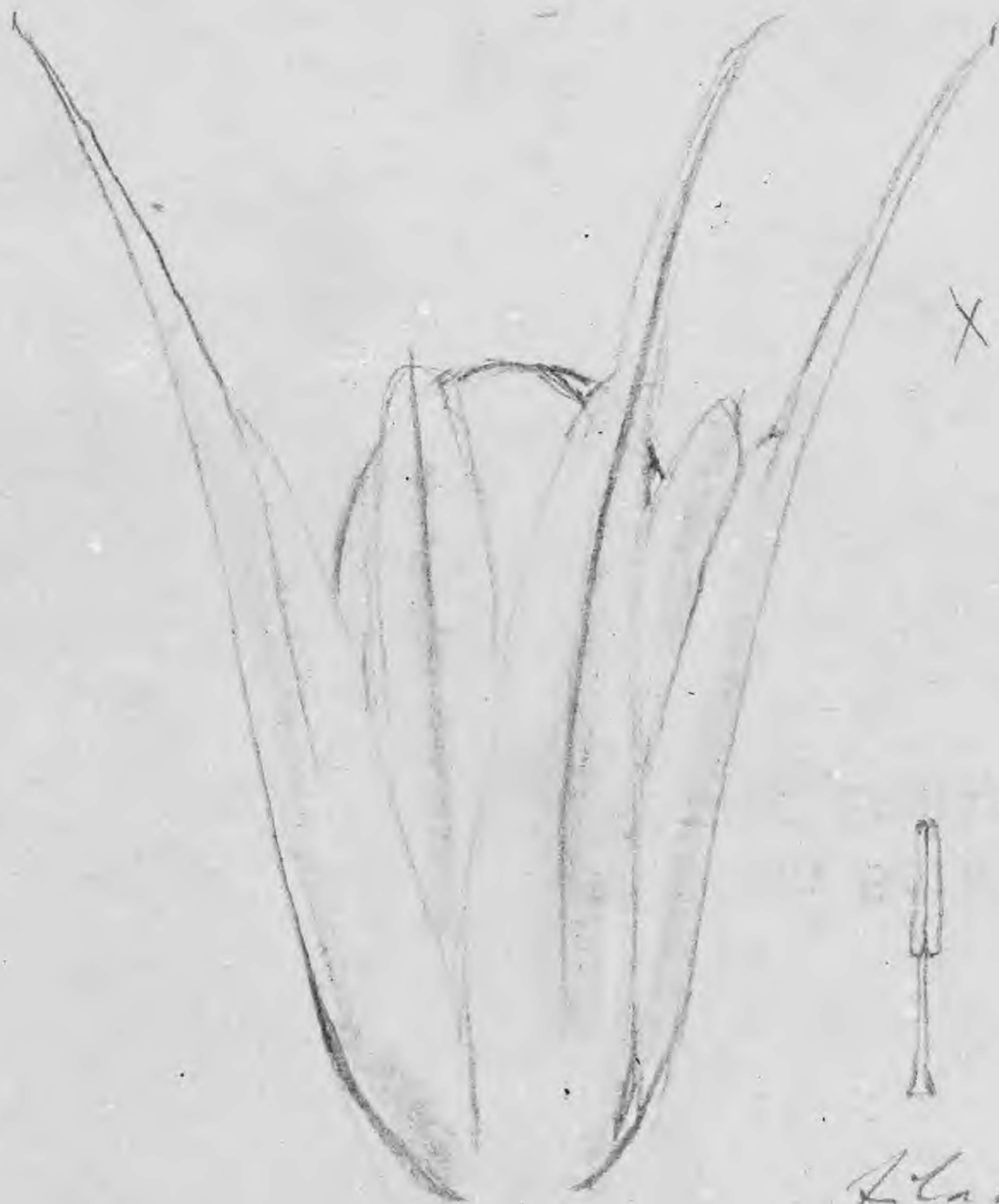
Colorado, Hall. 559

X60



not ripe

X10



filament
as long as
anther



0 1 2 3 4 5 6 7 8 9 10

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9227



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MISSOURI
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GARDEN

Juncus baeuensis.

Aug 16 1865

Johnston L. Sch

x60



seed

scarcely marked



x10



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GARDEN



x60

J. bufonius

Mendocino

seed with

20-40

delicate ribs

cross-limulate

whole size 20-27 mm 23

60

= 0.33-0.45

usually 0.38 mm long

inner sepals ^{acute} not much shorter than the outer ones, much longer than the retuse capsule

HERBARIUM JUNCORUM BOREALI-AMERICANORUM NORMALE,

ed. G. Engelmann, St. Louis, Missouri, 1866.

28. JUNCUS BUFONIUS, LIN.

Forma erecta sepalis subæqualibus capsulam retusam longe superantibus.

In gravelly soil, margin of pools near Mendocino City, California, with shrubby *Pinus contorta*.

H. BOLANDER leg. Mai. 1866.



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92296

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APOTHECARY & PHARMACEUTIST,
Corner 4th & Olive Streets, St. Louis.

92296

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92296A



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GARDEN

Juncus bufonius

March 7 1866

var. multiflorus Boiss
Charleston 1865 — H.C. Smith

B. fasciculatus Koch
Syn. Flor. Germ.

B. congestus 732 186

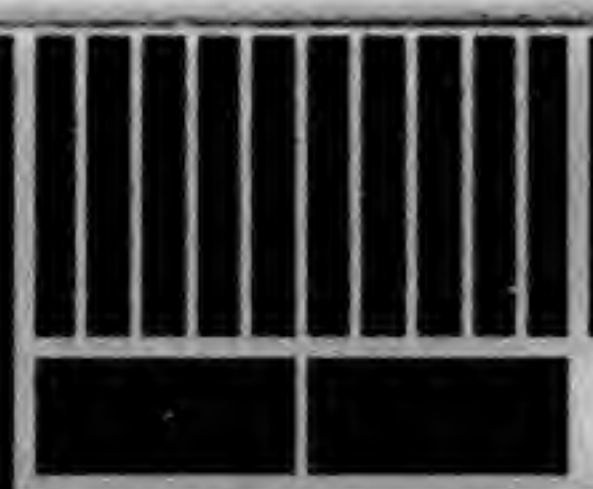
Flor. Bud.
ex Buchanan



X 150



sepalis late
membranaceis s. petalis
hyalinis & marginatis



0 1 2 3 4 5 6 7 8 9 10

cm

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0 1 2 3 4 5 6 7 8 9 10

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J. C. formis

March 10 1866

minutiss 1-2 pollinis

mini subminiflori

Colorado E Hall 559

- part



0 1 2 3 4 5 6 7 8 9 10

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cm

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GARDEN

J. Confarius
fasciculiflorus

Dec 11 1867

Southern Mississippi, Gulf Coast,

S. Hildgard

May 1859

x60



nearly smooth, shining

even with magn 150

only slight wrinkles, no
regular striulation recognized



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9232



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Berlin Jun 15 1868

S. euphratica

Dimorphia diandra

Scheidtweiler 1858

- Hb. A. Braun



bractea laciniae hyalinae

according to Braun's view



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MISSOURI BOTANICAL GARDEN
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9233



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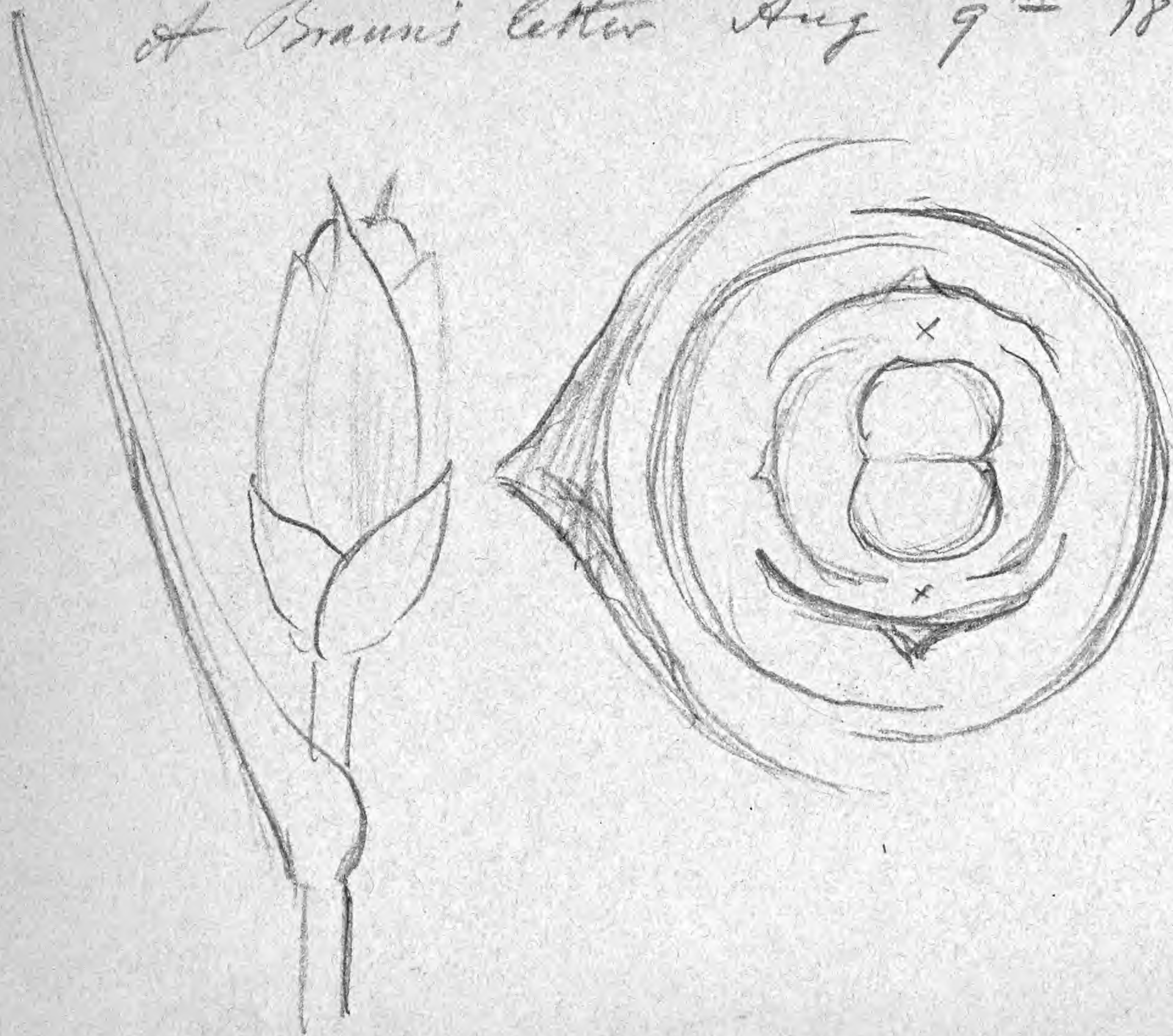
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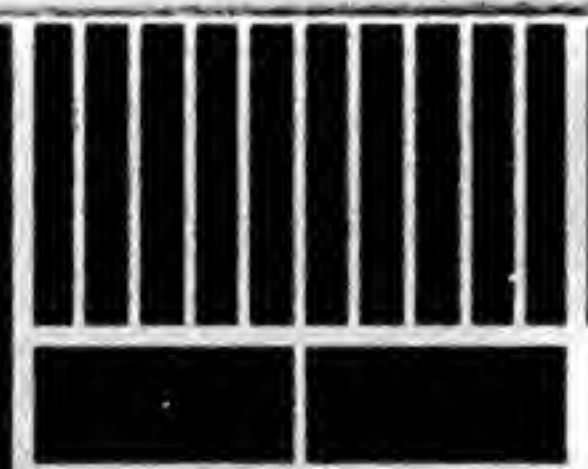
MISSOURI
BOTANICAL
GARDEN

L. biflorus *dimerus*

of Braun's letter Aug 9th 1868



There ought to be
2 anthers, etc. x
(not indicated in Braun's
sketch)



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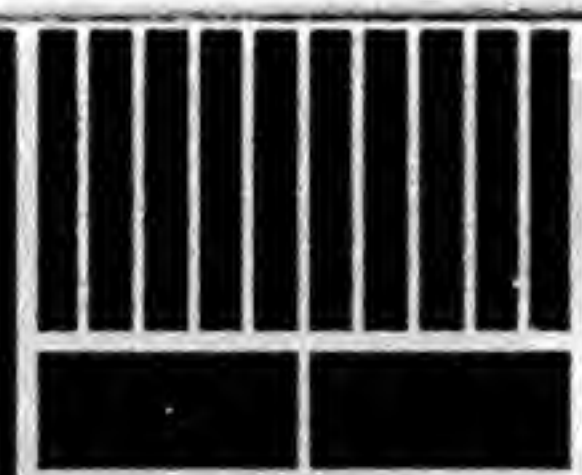
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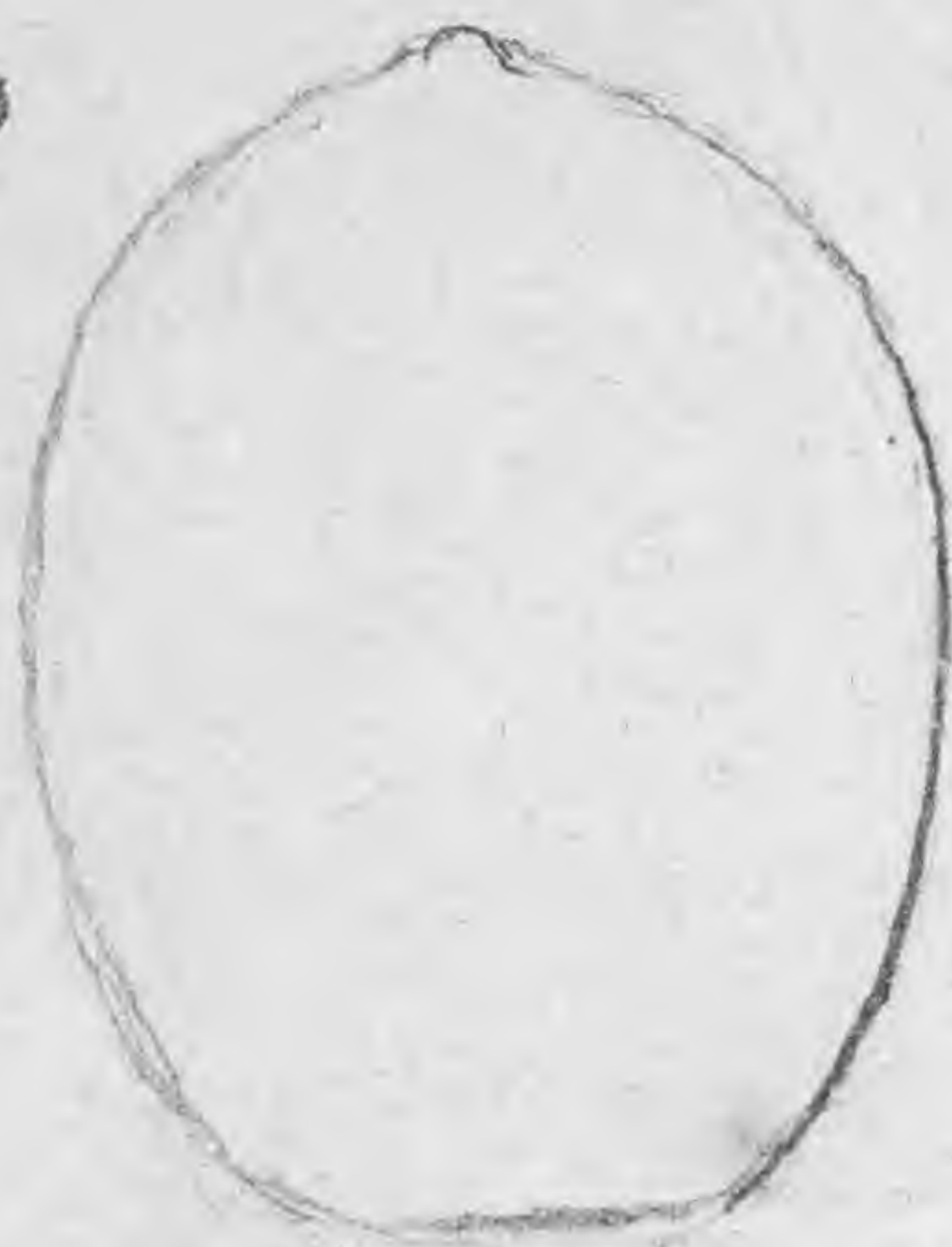


MISSOURI
BOTANICAL
GARDEN

Juncus bufonius var. *pasadenensis* Octob 20 1881
Sta Cruz, Calif

H. A. Jones 1881

x60



x60



seeds very variable
in size

x150

very indistinct
marks of seed



x10



sepals with broad
membranous margin



0

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MISSOURI
BOTANICAL
GARDEN

Leitch & Corlies

DRUGGISTS

South West
Corner Fifth
and Market
Streets

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9235



0 1 2 3 4 5 6 7 8 9 10

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GARDEN

June	1	1	3
July	2	4	3
August	3	1	2
September	4	4	8
October	3	1	1	7	1
November	2	3	7	7
December	2	3 .....	.....	.....	.....	6
	50 + el.	36 + el.	23 — el.	28 — el.	15 no el.	34 no el.

Snowing was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862.	In 1861.	In 1862.	In 1861.	In 1862.
January	3	9 .....	.....	2 .....	.....	.....
February	12	8 .....	.....	1 .....	.....	.....
March	3	12 .....	.....	.....	.....	.....
October .....	.....	1 .....	.....	.....	.....	.....
November .....	.....	4 .....	.....	.....	.....	.....
December	5	2	2 .....	.....	.....	1
	23 + el.	36 + el.	2 — el.	3 — el.	.....	1 no el.

REMARKS.

The monthly mean of atmospheric electricity in 1862 was not quite so regular as that in 1861. While in 1861 an un-

I. obtusissimus

S. circulator n. sp.

non-habitus

Korean Archipelago. Oshan

N 896

272



0 1 2 3 4 5 6 7 8 9 10

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or March, April, May and October; and the third with the lowest electricity by the months of June, July, August and September.

The aggregate monthly mean of

The first group in 1861 is 52.9—in 1862, 54.6	
The second “ “ 33.5 “ “ 35.2	
The third “ “ 14.1 “ “ 10.5	

Thus in 1861 the third group prevailed, and in 1862 the first and second. But these differences are so well balanced throughout the year, that the mean of the whole year in 1861 and in 1862 is exactly the same, namely, 8.4. Such an identity in the yearly result, even to decimals, is of course not to be expected every year; but it seems to prove, at least, that the yearly mean of electricity is as constant as that of temperature, of relative humidity, and of atmospheric pressure.

The third table, showing the daily periodicity of atmospheric electricity, confirms the daily two maxima and two minima of electricity as an undeniable fact.



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896 *Linum*

March 23 1866

Korean Archipelago

Oldham leg.

Hb. Gray

folia graminea plana



sepala ovata obtusissima
acutiuscula;
auto-anthesi irregulari



0 1 2 3 4 5 6 7 8 9 10

cm

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